

WHAT IS CLAIMED:

1. A dipole antenna for a wireless communication device comprising:
a first conductive element superimposed a portion of and separated from a second conductive element by a first dielectric layer;
a first conductive via connects the first and second conductive elements through the first dielectric layer;
the second conductive element being generally U-shaped;
the second conductor including a plurality of spaced conductive strips extending transverse from adjacent ends of the legs of the U-shape; and
each strip being dimensioned for a different λ_0 .
2. The antenna according to claim 1, wherein the first conductive element is L-shaped.
3. The antenna according to claim 2, wherein one of the legs of the L-shape is superimposed one of the legs of the U-shape.
4. The antenna according to claim 3, wherein the first conductive via connects the other leg of the L-shape to the other leg of the U-shape.
5. The antenna according to claim 2, wherein the first conductive via connects an end of one of the legs of the L-shape to one of the legs of the U-shape.
6. The antenna according to claim 1, wherein the first and second conductive elements are each planar.
7. The antenna according to claim 1, wherein each strip has a width less than $0.05 \lambda_0$ and a length of less than $0.5 \lambda_0$.
8. The antenna according to claim 1, wherein the antenna is omnidirectional and a gain exceeding 4 dB.
9. The antenna according to claim 1, including a ground plane conductor superimposed and separated from the second conductive element by a second dielectric layer; a third conductive element superimposed and separated from the strips of the second conductive element by the first dielectric layer; and a second conductive via connecting the third conductive element to the ground conductor through the dielectric layers.
10. The antenna according to claim 9, wherein the first and third conductive elements are co-planar.

11. The antenna according to claim 9, wherein the third conductive element includes a plurality of fingers superimposed a portion of lateral edges of each of the strips.

12. The antenna according to claim 9, wherein a first and last finger superimposed a first and last strip on each leg of the U-shape extend laterally beyond the lateral edges of the respective strips.

13. The antenna according to claim 9, wherein the permeability of the first dielectric layer is substantially greater than the permeability of the second dielectric layer.

14. The antenna according to claim 13, wherein the thickness of the first dielectric layer is substantially less than the thickness of the second dielectric layer.

15. The antenna according to claim 9, wherein the thickness of the first dielectric layer is at least half the thickness of the second dielectric layer.

16. The antenna according to claim 9, wherein the antenna is directional and has a gain exceeding 7 dB.

17. The antenna according to claim 1, wherein the first dielectric layer is a substrate, and the first and second conductive elements are printed elements on the substrate.

18. The antenna according to claim 1, wherein the plurality of strips are parallel to each other.